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NPIC/R-89/64

February 1964

PHOTOGRAPHIC INTERPRETATION REPORT

MOSCOW AIR DEFENSE RADAR SITES, USSR

CIA

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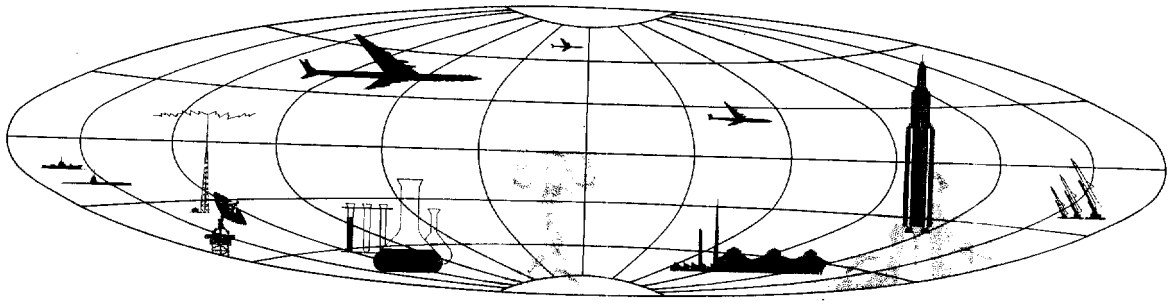

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MOSCOW AIR DEFENSE RADAR SITES, USSR

INTRODUCTION

Moscow is the center of two concentric rings of essentially similar radar sites. The inner ring is composed of four sites deployed at regular intervals along a circle having a radius of approximately 14 nautical miles (nm). The outer ring is composed of ten sites deployed at regular intervals along a circle having a radius of approximately 200 nm. Although all of these have been referred to as "early warning" radar sites, technically speaking the word "early" applies only to the outer ring of sites.

By utilizing recent KEYHOLE photography, all of the sites have been precisely located and examined. However, they are not individually described in detail in this report because variations from site to site are generally insignificant and because there has been little overall change in the sites themselves since their detailed description in CIA/PIC/R-4/60, May 1960. 1/ [redacted]

25X1B

25X1B

[redacted] 25X1B

The greatest apparent difference between an inner-ring and an outer-ring site is in the configuration of the fenced operations area -- rectangular for the inner and trapezoidal for the outer. This difference occurs because the outer-ring site fence is extended to enclose high-frequency communication antennas situated to the rear of the radar positions, antennas which are apparently not needed at the inner-ring sites in view of the proximity of Moscow.

The line drawing of the inner-ring operations area utilizes the best available coverage of all inner-ring sites, and is, therefore, a composite sketch of a typical site rather than a representation of any specific location. For the [redacted] changes since [redacted] if any, are noted both in text and drawing when applicable. 25X1D

25X1B

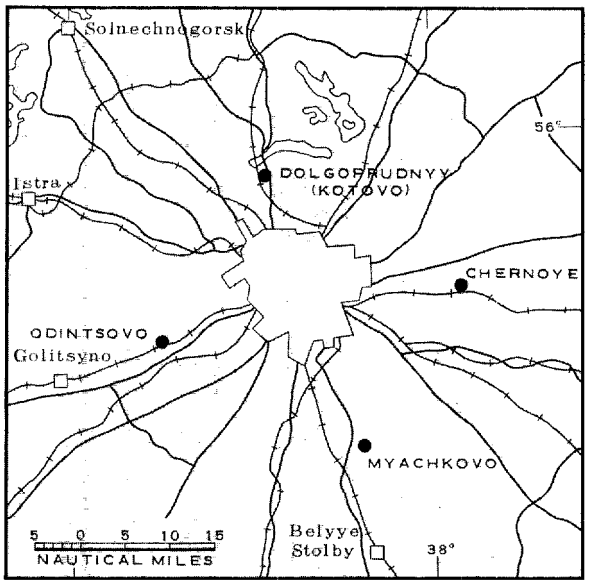
INNER-RING SITES

Four GAGE--PATTY CAKE--CROSS OUT radar sites are situated at regular intervals around Moscow (Figure 1). In clockwise order, they are Dolgoprudnyy (Kotovo), north-northwest; Chernoye, east; Myachkovo, south-southeast; and Odintsovo, southwest. A circle with a radius of 14 nm would intersect all except the site at Myachkovo, which is 12.8 nm from the common center. However, the hub of such a circle would not be the center of Moscow (the Kremlin), but a point 1.6 nm to the southwest.

The following generalized descriptions are applicable to the four locations, all of which have, in addition to an operations area, an adjacent support area.

TYPICAL OPERATIONS AREA

The area (Figure 2) is fenced and generally rectangular in shape, averaging 3,500 feet long and 1,000 feet wide. The radar components are placed on elevated positions, either mounds or low towers, along a straight service road that runs the length of the site. There are two such positions at both ends of the road, and a fifth near a control bunker or control building midway between the outer mounds. It is believed that GAGE and PATTY CAKE radar antennas are on the outer positions, and that CROSS OUT is on the mound near the center. If there have been additions or changes in type (such as BACK



NPIC R-725 (2/64)

FIGURE 1. LOCATION OF INNER-RING RADAR SITES.

NET and SIDE NET) or in positioning of the
25X1D radar antennas since [redacted] this is not apparent on KEYHOLE photography, although there are several cleared areas and unidentified scars and structures along the service road where additional antennas could possibly be located. For example, according to R-4/60 1/ there were eight radars at the Dolgoprudnyy (Kotovo)
25X1D site in [redacted]
25X1B
25X1B

TYPICAL SUPPORT AREA

The radar sites have a support area which is much the same in all cases, containing administration, recreation, and maintenance buildings in addition to regular housing. In three cases, the support area is adjacent to the operations area, while in the fourth case (Myachkovo) it is separated from it by a one-nm-wide patch of woods. (This latter location also has the only concealed operations area, all the others being readily visible to passing traffic.)

[redacted]

25X1B

INDIVIDUAL INNER-RING SITES

Dolgoprudnyy (Kotovo)

Location: Just east of Dolgoprudnyy and 12.5 nm NNW of the center of Moscow
Coordinates: 55-57-10N 37-31-50E

25X1D [redacted]

Map: USATC 200/0167-5IHL, 2d ed, Apr 63, 1:200,000 (SECRET)

Remarks: This site (Figure 3) is situated just east of the facility shown on the referenced map as "Moscow Radar Station, Kotovo

25X1A [redacted]

and is probably the same site more precisely located. There has been no discernible change in the site since PIC/R-4/60, 1/ in which it is described as the "Kotovo Radar Site."

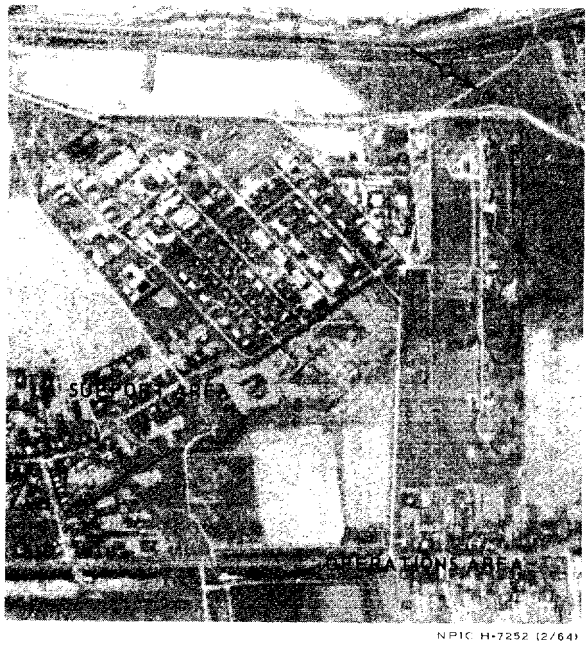


FIGURE 3. INNER-RING RADAR SITE AT DOLGOPRUDNYY (KOTOVO), [redacted] 25X1D

Chernoye

Location: At Moscow/Chernoye Airfield

25X1A [redacted]

and 15.4 nm east of the center of Moscow
Coordinates: 55-45-45N 38-04-50E

25X1D [redacted]

Map: USATC 200/0167-5IHL, 2d ed, Apr 63, 1:200,000 (SECRET)

Remarks: In addition to its normal compliment of barracks-type buildings, this site has eight others of recent construction on the eastern side of the support area.

Myachkovo

Location: 6.6 nm WSW of Moscow/Myachkovo Airfield

25X1A [redacted]

and 14.4 nm SSE of the center of Moscow
Coordinates: 55-32-10N 37-42-40E

25X1D [redacted]

Map: USATC 200/0167-5IHL, 2d ed, Apr 63, 1:200,000 (SECRET)

Remarks: This site is situated just east of the facility shown on the referenced map as "Moscow Radar Station, Petrovskaya [redacted] 25X1A

[redacted] 25X1A

" and is probably the same site more precisely located. Although the operations area is concealed in deep woods, the support area is plainly visible from the highway. This area has the largest number of individual housing units (approximately 40).

Odintsovo

Location: In the SW environs of Odintsovo and 13.2 nm SW of the center of Moscow
Coordinates: 55-39-30N 37-16-02E

[redacted] 25X1D

Map: USATC 200/0167-5IHL, 2d ed, Apr 63, 1:200,000 (SECRET)

Remarks: There has been no apparent change at this site since PIC/R-4/60. 1/

OUTER-RING SITES

A total of ten GAGE--PATTY CAKE--CROSS OUT/BAR LOCK--ROCK CAKE/STONE CAKE radar sites have been identified on KEYHOLE photography situated at generally equal intervals along the circumference of an approximately 200-nm-radius circle with Moscow at its center (Figure 4). The only apparent change to or modification of these facilities since [redacted] has been the extension of the fence to include an additional probable radar position at three of the ten sites (shown in red on Figure 5). The following generalized descriptions are applicable to all of the outer-ring sites, which have, in addition to an operations area, an adjacent support area (Figure 6).

25X1D

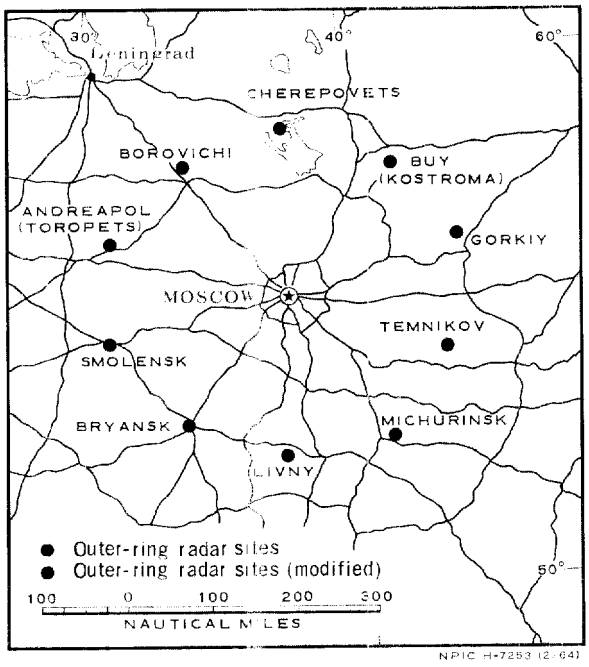


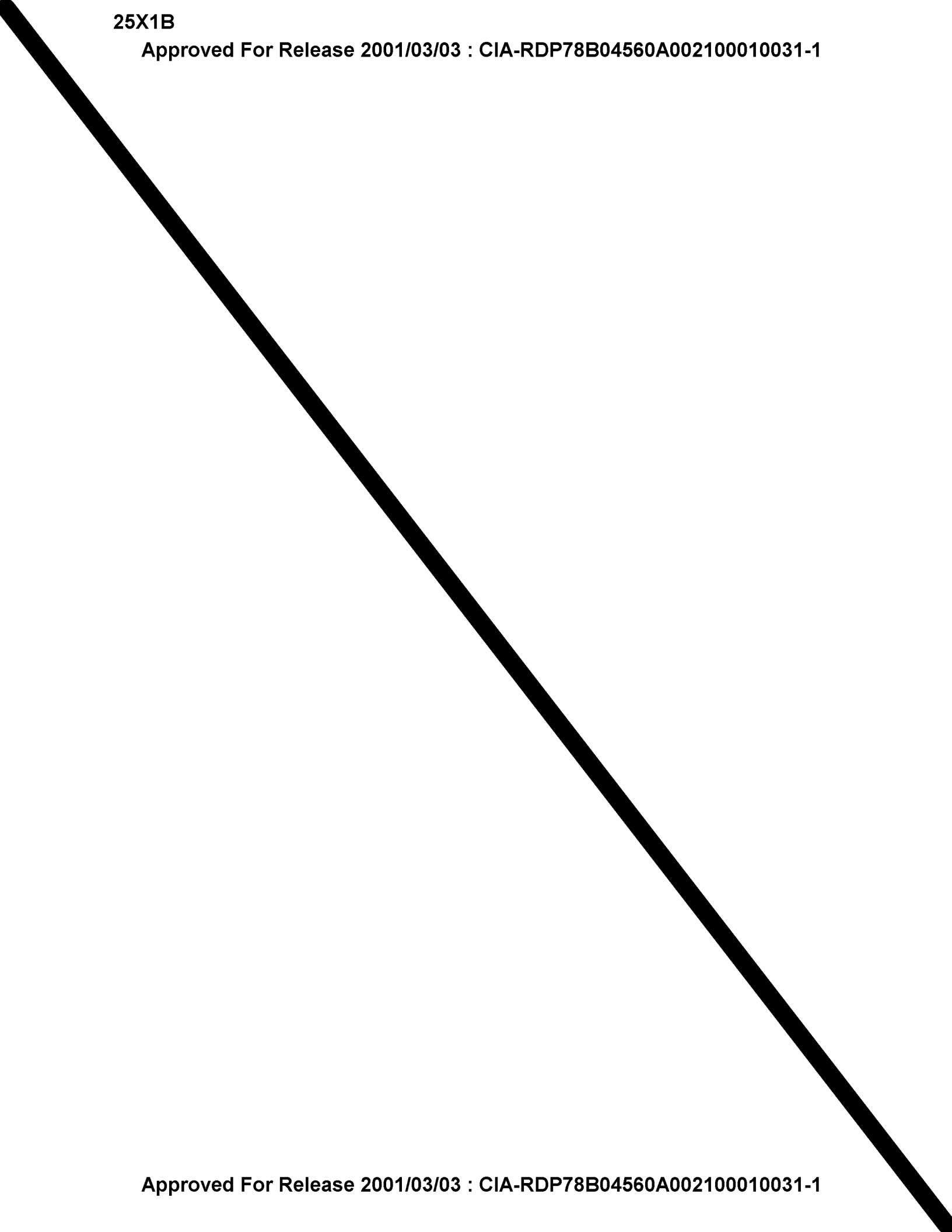
FIGURE 4. LOCATION OF OUTER-RING RADAR SITES.

TYPICAL OPERATIONS AREA

25X1B

[redacted]

25X1B



25X1B

[redacted]

25X1D

[redacted]

Map: USATC 200/0154-25AL, 2d ed, Sep 60, 1:200,000 (SECRET)

Remarks: In addition to all the basic components, the operations area includes an additional, seventh probable radar position, new since [redacted] for which the fence has been extended. A typical support area is one nm to the northeast.

25X1D

INDIVIDUAL OUTER-RING SITES

Buy (Kostroma)

Location: 15 nm east of Buy and 53 nm NE of Kostroma 1/
Coordinates: 58-28-08N 41-57-02E

25X1D [redacted]

Map: USATC 200/0154-10, 1st ed, Sep 58, 1:200,000 (CONFIDENTIAL)

Remarks: Although the operations area contains all the other basic components, including the six radar positions, no communication facilities could be identified, a fact possibly attributable to vegetation obscuring the characteristic shadows. No additional position was observed outside the trapezoidal pattern. A typical support area is one nm northwest of the operations area.

Gorkiy

Location: 20 nm NNW of Gorkiy and 9 nm east of Gorodets
Coordinates: 56-38-00N 43-45-40E

Temnikov

Location: Approximately 16 nm WSW of Temnikov
Coordinates: 54-31-00N 42-48-20E

[redacted]

25X1D

Map: USATC 200/0166-8A, 2d ed, Apr 60, 1:200,000 (SECRET)

Remarks: There has been no apparent change in this facility since its description in PIC/R-4/60. 1/

Michurinsk [redacted]

25X1A

Location: 5.5 nm NE of Michurinsk
Coordinates: 52-55-35N 40-38-40E

[redacted]

25X1D

Map: USATC 200/0166-16A, 2d ed, Apr 60 (SECRET)

Remarks (Figure 6): Except for the extension of the fence at the east-northeast corner of the site to enclose an additional probable radar position and two unidentified structures, there has been no other apparent change since its description in PIC/R-4/60. 1/ A typical support area is 0.5 nm to the southeast, and apparently unchanged since its earlier description.

Livny

Location: 15.5 nm NW of Livny
Coordinates: 52-36-11N 37-19-04E

25X1D [redacted]

Map: USATC 200/0167-25A, 2d ed, Apr 60, 1:200,000 (SECRET)

Remarks: The operations area contains all the basic components, including six radar positions, and no additional position was observed outside the trapezoidal pattern. A typical support area is one nm east of the operations area.

Bryansk 25X1A [redacted]

Location: 6 nm SW of the center of Bryansk
Coordinates: 53-13-20N 34-14-40E

25X1D [redacted]

Map: USATC 200/0167-18HL, 2d ed, Feb 63, 1:200,000 (SECRET)

Remarks: The operations area contains all the basic components, including six radar positions, and no additional position was observed outside the trapezoidal pattern. A typical support area is 0.5 nm to the south-southeast.

Smolensk 25X1A [redacted]

Location: 8 nm WNW of the center of Smolensk
Coordinates: 54-49-11N 31-49-14E

25X1D [redacted]

Map: USATC 200/0167-7HL, 2d ed, Dec 62, 1:200,000 (SECRET)

Remarks: There has been no apparent change in this facility since its description in PIC/R-4/60. 1/

Andreapol (Toropets)

Location: 3 nm NW of Andreapol and 22 nm NE of Toropets 1/
Coordinates: 56-40-46N 32-13-00E

25X1D [redacted]

Map: USATC 200/0153-25KL, 3d ed, Feb 63, 1:200,000 (SECRET)

Remarks: In addition to all the basic components, including six radar positions, the operations area now includes a seventh probable position for which the south-southwest fence corner has been extended. A typical support area is approximately one nm east of the operations area.

Borovichi 25X1A [redacted]

Location: 2.5 nm north of Borovichi
Coordinates: 58-26-20N 33-55-20E

25X1D [redacted]

Map: USATC 200/0154-6A, 1st ed, Nov 58, 1:200,000 (SECRET)

Remarks: The operations area contains all the basic components, including six radar positions, and no additional position was observed outside the normal pattern. A typical support area is one nm to the southwest.

This is the only known early warning radar site in the Borovichi area.

Cherepovets 25X1A [redacted]

Location: 12 nm north of Cherepovets at Ehiokos
Coordinates: 59-18-45N 37-58-00E

25X1D [redacted]

Map: USATC 200/0154-3AL, 2d ed, Nov 59, 1:200,000 (SECRET)

Remarks: The operations area appears to contain all the typical components, including six radar positions. However, the presence or absence of additional radar positions outside the basic trapezoidal area cannot be determined on available photography. A typical support area is approximately one nm west-southwest of the operations area.

REFERENCES

DOCUMENTS

1. CIA, PIC R-4-60, GAGE-PATTY CAKE Radar Sites Probably Associated With Moscow Air-Defense System, May 1960 (TOP SECRET CHESS)

REQUIREMENT

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